IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of

Jonathan Haswell		Art Unit:	2132
Serial No:	10/737,139	Examiner:	B.E. Lanier
Filed:	December 15, 2003	Confirmation No.:	6349
For:	A POLICY-DRIVEN FILE SYSTEM WITH INTEGRATED RAID FUNCTIONALITY	Attorney Ref.:	ARC920030095US1

APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner For Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sirs:

This Appeal Brief is submitted in connection with the Notice of Appeal submitted August 20, 2008, and the final Office Action dated May 6, 2008, in the above-captioned patent application.

REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corporation.

RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that are related to the present appeal.

STATUS OF CLAIMS

Claims 1-40 are pending and stand finally rejected in the above-captioned patent application.

Claims 1-40 are the subject of this appeal.

STATUS OF AMENDMENTS

All amendments made to the claims have been entered. There are no amendments of the claims that have not been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

There are three (3) independent claims that are the subject of this appeal, independent claims 1, 15 and 31. In the following paragraphs, the references to the subject matter of independent claims 1, 15 and 31 refer to locations in the originally filed patent application and the originally filed figures.

Independent claim 1 is directed to a filing system (filing system 101, paragraph [18], lines 1-2 and Figure 1) controlling block-level storage on a plurality of storage units (array 102 of storage units, paragraph [18], lines 1-2, and Figure 1). The filing system comprises a policy manager (policy manager 113, paragraph [18], line 4, and Figure 1) comprising at least one rule relating to block-level storage for a RAID level of protection for a file stored on the plurality of storage units (paragraph [19], lines 7-8, and paragraph [26], lines 4-7), such that the RAID level of protection is selected from a plurality of RAID levels of protection (paragraph [20], lines 1-2, and paragraph [26], lines 7-10), and at least one rule is based on an access pattern of files stored on the plurality of storage units (paragraph [16], lines 8-10), such that the filing system comprises information for each data block of the file indicating a number of other files in the filing system that require the data block for providing parity information for rebuilding each of the other files based on a parity calculation (paragraph [24], lines 11-14). The filing system also comprises an access manager (access monitor 118, paragraph [18], line 5) providing the policy manager with information relating to access patterns of files stored on the plurality of storage

units (paragraph [22], lines 5-8).

Independent claim 15 is directed to a method of creating a file (paragraph [26], lines 1-23) on a storage subsystem having a plurality of storage units (array 102 of storage units, paragraph [18], lines 1-2, and Figure 1). The method comprises receiving a request at a filing system to create a file on the plurality of storage units (paragraph [26], lines 1-4), such that the filing system comprises information for each data block of the file indicating a number of other files in the filing system that require the data block for providing parity information for rebuilding each of the other files based on a parity calculation (paragraph [24], lines 11-14). A policy manager (policy manager 113, paragraph [18], line 4, and Figure 1) is queried for at least one rule relating to block-level storage for a RAID level of protection for the file created on the plurality of storage units (paragraph [19], lines 7-8, and paragraph [26], lines 4-7), such that the RAID level of protection is selected from a plurality of RAID levels of protection (paragraph [20], lines 1-2, and paragraph [26], lines 7-10), and at least one rule contained in the policy manager is based on an access pattern of files stored on the plurality of storage units (paragraph [16], lines 8-10). The file is written to the plurality of storage units based on the RAID level of protection selected for the file (paragraph [26], lines 21-23). Metadata is maintained relating to a location of RAID information for the file within the filing system metadata information (paragraph [26], lines 19-21).

Independent claim 31 is directed to a method of writing a file (paragraph [27], lines 1-13) on a storage subsystem having a plurality of storage units (array 102 of storage units, paragraph [18], lines 1-2, and Figure 1). The method comprises determining at a filing system that a file stored on the plurality of storage units should be updated (paragraph [27], lines 3-6), such that the filing system comprises information for each data block of the file indicating a number of other files in the filing system that require the data block for providing parity information for rebuilding each of the other files based on a parity calculation (paragraph [24], lines 11-14). A policy manager is queried for at least one rule relating to block-level storage for a RAID level of protection for the file stored on the plurality of storage units (paragraph [26], lines 4-10), such that the RAID level of protection is selected from a plurality of RAID levels of

protection (paragraph [20], lines 1-2, and paragraph [26], lines 7-10), and such that at least one rule contained in the policy manager is based on an access pattern of files stored on the plurality of storage units (paragraph [16], lines 8-10). The file is written to the plurality of storage units based on the RAID level of protection selected for the file (paragraph [27], lines 12-13.) Metadata is maintained relating to a location of RAID information for the file within the filing system metadata information (paragraph [26], lines 19-21).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-3, 5, 6, 9, 10 and 12-14 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey et al. (Velez-McCaskey), U.S. Patent No. 6,098,128, in view of Rudoff, U.S. Patent No. 6,636,878 B1, and further in view of Nishida et al. (Nishida), U.S. Patent No. 5,677,900.

Claims 4 and 11 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff, in view of Nishida as applied to claim 1, and further in view of Bright et al. (Bright), U.S. Patent No. 7,058,819 B2.

Claim 7 stands finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff, in view of Nishida as applied to claim 1, and further in view of Gotoh, U.S. Patent No. 6,223,300 B1.

Claim 8 stands finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff, in view of Nishida, and further in view of Styczinski, U.S. Patent No. 5,960,169.

Claims 15-20, 24-26, 28-33, 35, 36 and 38-40 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff, in view of Nishida, further in view of Frey, Jr., U.S. Patent No. 6,742,137 B1.

Claims 22 and 34 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff, in view of Nishida, in view of Frey, Jr., and further in view of Styczinski.

Claims 21 and 23 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Frey, Jr. as applied to claim 15, and further in view of Gotoh.

Claims 27 and 37 stand finally rejected under 35 U.S.C. § 103(a) as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida, and further in view of Frey, Jr. as applied to claims 15 and 31, and further in view of Bright.

ARGUMENT

I.   The Rejection Based On Velez-McCaskey In View Of Rudoff And Further In View Of Nishida

Applicant respectfully traverses the rejection of claims 1-3, 5, 6, 9, 10 and 12-14 as unpatentable over Velez-McCaskey in view of Rudoff and further in view of Nishida. Applicant respectfully submits that the subject matter according to any of claims 1-3, 5, 6, 9, 10 and 12-14 is patentable over Velez-McCaskey in view of Rudoff and further in view of Nishida. In particular, Applicant respectfully submits that the Examiner has not presented a convincing line of reasoning as to why an artisan would have found the subject matter of claims 1-3, 5, 6, 9, 10 and 12-14 to have been obvious in light of the teachings of Velez-McCaskey in view of Rudoff and further in view of Nishida.

> "To support the conclusion that the claimed invention is directed to obvious
> subject matter, either the references must expressly or impliedly suggest the
> claimed invention or the examiner must present a convincing line of reasoning as
> to why the artisan would have found the claimed invention to have been obvious
> in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972,
> 973 (Bd. Pat. App. & Inter. 1985). (See, also, MPEP §§ 706.02(j) and 2144.)

A. **The Examiner Does Not State That Velez-McCaskey, Rudoff Or Nishida Expressly Or Impliedly Suggest the Claimed Subject Matter**

1. In the present rejection, the Examiner does not state that Velez-McCaskey, Rudoff or Nishida expressly or impliedly suggest the subject matter of claims 1-3, 5, 6, 9, 10 and 12-14.

2. Consequently, in order to support the present rejection, the Examiner's line of reasoning must be convincing as to why an artisan would have found the claimed subject matter to have been obvious in light of the teachings of Velez-McCaskey, Rudoff and Nishida.

B. **The Examiner Has Not Established A Convincing Line Of Reasoning As To Why An Artisan Would Have Found The Claimed Subject Matter To Have Been Obvious In Light Of The Teachings Of Velez-McCaskey, Rudoff and Nishida**

1. For independent claim 1, the Examiner's stated line of reasoning is that "it would have been obvious to one of ordinary skill in the art at the time the invention was made for the shared data blocks to include parity information in order to provide error detection and correction when the data files are rebuild [sic] as taught by Nishida (Col. 1, lines 29-33)." (See final Office Action dated May 6, 2008, page 4, lines 8-11.)

2. Based on this statement, Applicant respectfully understands that the Examiner is essentially asserting that it would have been obvious to include the concept of data blocks having parity information, as taught by Nishida, with the combination of Velez-McCaskey and Rudoff.

3. Applicant respectfully submits that Nishida relates to a sequential access-type data recording/reproducing system and method, such as the spiral track of an optical disc or a magnetic tape. (See Nishida, column 1, lines 9-13.)

4. In this regard, Nishida discloses that each data file recorded on the sequential access-type medium includes a plurality of data blocks, having as their components clusters of data to which parity has been added for detection/correction of errors. (See Nishida,

column 1, lines 29-32; column 7, lines 11-13; column 8, lines 21-23; column 9, lines 30-32; and column 10, lines 37-39; and Figures 4, 6, 8, 10 and 12.)

5.   Notably, each example of a recorded data file provided by Nishida is a data file that is sequentially recorded on the storage medium. That is, Nishida discloses a data file comprising a plurality of data blocks to which parity has been added and that the data file is sequentially recorded on the storage medium.

6.   In contrast, Velez-McCaskey discloses that "one surface 66 of each of the drives is dedicated to parity." (See Velez-McCaskey, column 9, lines 27-28, and Figures 9, 10a and 10b.) Additionally, Velez-McCaskey discloses that "parity information may be sent to any other parity drive surface." (See Velez-McCaskey, column 9, lines 31-32.) Further, Velez-McCaskey discloses that "RAID-3 is implemented within each drive of the array, and the generated parity is transmitted to the appointed parity drive for RAID-4 implementation, or striped across all of the drives for RAID-5 implementation." (See Velez-McCaskey, column 9, lines 32-36.)

7.   Thus, Velez-McCaskey discloses that a data file and the corresponding parity information for the file are not sequentially recorded on the same storage medium. For Velez-McCaskey, the parity information is stored on a "parity drive surface," and is, therefore, not sequentially recorded with the data file for RAID-3 and RAID-4 implementations. For a RAID-5 implementation, the parity information is striped across all drives of the RAID-5 implementation.

8.   Applicant respectfully submits that combining Nishida with Velez-McCaskey, on one hand, would change the principle of operation of Nishida because a Nishida data file would not be sequentially recorded on the storage medium so that the parity information for the data file was sequentially recorded with the data. On the other hand, if the Nishida sequential recording of a data file with the parity information for the file is adhered to, then the principle of operation of Velez-McCaskey would be changed.

9.   In the final Office Action dated May 6, 2008, the Examiner states that Nishida is not being modified. Thus, if Nishida is not being modified, then Velez-McCaskey is the applied patent that is being modified.

10.   Applicant respectfully submits that Velez-McCaskey states at column 9, lines 27-28, that in Figures 9-11, at least one surface 66 of each of the drives is dedicated for parity.

11.   Consequently, to modify Velez-McCaskey as taught by Nishida as urged by the Examiner would result in there not being one surface 66 of each of the drives of Velez-McCaskey that would be dedicated to parity because the parity would be recorded sequentially with the data on the drives (as taught by Nishida).

12.   Applicant respectfully submits that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

13.   Applicant respectfully submits that to change the principle of operation of Velez-McCaskey in order to form the subject matter of claim 1 is contrary to *In re Ratti*, 270 F.2d.810, 123 USPQ 349 (CCPA 1959). (See, also, MPEP § 2143.01.)

14.   Further, Applicant respectfully submits that the Examiner's proffered reasoning for combining Nishida with the combination of Velez-McCaskey and Rudoff is the mere assertion that "it would have been obvious to one of ordinary skill in the art at the time the invention was made for the shared data blocks to include parity information in order to provide error detection and correction when the data files are rebuild [sic] as taught by Nishida (Col. 1, lines 29-33)." (See final Office Action dated May 6, 2008, page 4, lines 8-11.)

15.   Applicant respectfully submits that the proffered reasoning is nothing more than a conclusory statement without any support. "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness". *In re Kahn*, 441 F. 3d 977, 988 (Fed.Cir. 2006) (Cited with approval in KSR.)

16.   As such, Applicant respectfully submits that the Examiner's line of reasoning for combining Nishida with the combination of Velez-McCaskey and Rudoff is not convincing because there is no rational underpinning to support the proffered line of reasoning. To modify Velez-McCaskey at taught by Nishida as urged by the Examiner would result in there not being one surface 66 of each of the Velez-McCaskey drives that would be dedicated to parity because the parity would be recorded sequentially with the data on the drives (as taught by Nishida).

C.   Claims 1-3, 5, 6, 9, 10 and 12-14 Are Allowable Over Velez-McCaskey In View Of Rudoff And Further In View Of Nishida

1.   Accordingly, independent claim 1 is allowable over Velez-McCaskey in view of Rudoff and further in view of Nishida.

2.   It follows that claims 2, 3, 5, 6, 9, 10 and 12-14, which incorporate the features of claim 1, are each allowable over Velez-McCaskey in view of Rudoff and further in view of Nishida for at least the same reasons that claim 1 is considered allowable.

3.   The Examiner does not state that any of Velez-McCaskey, Rudoff or Nishida expressly or impliedly suggests the claimed subject matter.

4.   Moreover, the Examiner has not presented a convincing line of reasoning as to why an artisan would have found the claimed subject matter to have been obvious in light of the teachings of Velez-McCaskey, Rudoff and Nishida because the Examiner improperly modifies the principle of operation of Nishida to arrive at the claimed subject matter, additionally or in the alternative, the Examiner improperly modifies the principle of operation of Velez-McCaskey to arrive at the claimed subject matter. Moreover, Applicant respectfully submits that the proffered motivation for combining Velez-McCaskey, Rudoff and Nishida is a conclusory statement without any rational underpinning to support the line of reasoning. Thus, it is only by using Applicant's disclosure as a template that the Examiner is able to select particular features of Velez-McCaskey, Rudoff and Nishida through a hindsight reconstruction of Applicant's claims to make the rejection.

5. Consequently, Applicant respectfully requests that this rejection be withdrawn, and claims 1-3, 5, 6, 9, 10 and 12-14 be allowed.

II. The Rejection Based On Velez-McCaskey In View Of Rudoff In View Of Nishida And Further In View Of Bright

Applicant respectfully traverses the rejection of claims 4 and 11 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Bright. Applicant respectfully submits that the subject matter according to any of claims 4 and 11 is patentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Bright.

A. In particular, Applicant respectfully submits that Bright does not cure the deficiencies of Velez-McCaskey in view of Rudoff and further in view of Nishida with respect to claim 1, the base claim of both claims 4 and 11.

B. More specifically, Applicant respectfully submits that (1) Bright does not cure the Examiner's impermissible change of operation of Velez-McCaskey, and (2) Bright does not cure the Examiner's unconvincing line of reasoning for combining Velez-McCaskey, Rudoff and Nishida.

C. Consequently, Applicant respectfully requests that the rejection of claims 4 and 11 be withdrawn, and claims 4 and 11 be allowed.

III. The Rejection Based On Velez-McCaskey In View Of Rudoff In View Of Nishida And Further In View Of Gotoh

Applicant respectfully traverses the rejection of claim 7 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Gotoh. Applicant respectfully submits that the subject matter according to claim 7 is patentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Gotoh.

A. In particular, Applicant respectfully submits that Gotoh does not cure the deficiencies of Velez-McCaskey in view of Rudoff and further in view of Nishida with respect to claim 1, the base claim of claim 7.

B.   More specifically, Applicant respectfully submits that (1) Gotoh does not cure the Examiner's impermissible change of operation of Velez-McCaskey, and (2) Gotoh does not cure the Examiner's unconvincing line of reasoning for combining Velez-McCaskey, Rudoff and Nishida.

C.   Consequently, Applicant respectfully requests that the rejection of claim 7 be withdrawn, and claim 7 be allowed.

IV.   The Rejection Based On Velez-McCaskey In View Of Rudoff In View Of Nishida And Further In View Of Styczinski

Applicant respectfully traverses the rejection of claim 8 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Styczinski. Applicant respectfully submits that the subject matter according to claim 8 is patentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Styczinski.

A.   In particular, Applicant respectfully submits that Styczinski does not cure the deficiencies of Velez-McCaskey in view of Rudoff and further in view of Nishida with respect to claim 1, the base claim of claim 8.

B.   More specifically, Applicant respectfully submits that (1) Styczinski does not cure the Examiner's impermissible change of operation of Velez-McCaskey, and (2) Styczinski does not cure the Examiner's unconvincing line of reasoning for combining Velez-McCaskey, Rudoff and Nishida.

C.   Consequently, Applicant respectfully requests that the rejection of claim 8 be withdrawn, and claim 8 be allowed.

V.   The Rejection Based On Velez-McCaskey In View Of Rudoff In View Of Nishida And Further In View Of Frey, Jr.

Applicant respectfully traverses the rejection of claims 15-20, 24-26, 28-33, 35, 36 and 38-40 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Frey, Jr. Applicant respectfully submits that the subject matter according to any of

claims 15-20, 24-26, 28-33, 35, 36 and 38-40 is patentable over Velez-McCaskey in view of Rudoff and in view of Nishida and further in view of Frey, Jr. In particular, Applicant respectfully submits that the Examiner has not presented a convincing line of reasoning as to why an artisan would have found the subject matter of claims 15-20, 24-26, 28-33, 35, 36 and 38-40 to have been obvious in light of the teachings of Velez-McCaskey in view of Rudoff and in view of Nishida and further in view of Frey, Jr.

> "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). (See, also, MPEP §§ 706.02(j) and 2144.)

A.   **The Examiner Does State That Velez-McCaskey, Rudoff, Nishida Or Frey, Jr. Expressly Or Impliedly Suggest the Claimed Subject Matter**

1.   In the present rejection, the Examiner does not state that Velez-McCaskey, Rudoff, Nishida or Frey, Jr. expressly or impliedly suggest the subject matter of claims 15-20, 24-26, 28-33, 35, 36 and 38-40.

2.   Consequently, in order to support the present rejection, the Examiner's line of reasoning must be convincing as to why an artisan would have found the claimed subject matter to have been obvious in light of the teachings of Velez-McCaskey, Rudoff, Nishida and Frey, Jr.

B. **The Examiner Has Not Established A Convincing Line Of Reasoning As To Why An Artisan Would Have Found The Claimed Subject Matter To Have Been Obvious In Light Of The Teachings Of Velez-McCaskey, Rudoff, Nishida and Frey, Jr.**

1.　For independent claims 15 and 31, the Examiner's stated line of reasoning is that "it would have been obvious to one of ordinary skill in the art at the time the invention was made for the shared data blocks to include parity information in order to provide error detection and correction when the data files are rebuild [sic] as taught by Nishida (Col. 1, lines 29-33)." (See final Office Action dated May 6, 2008, page 4, lines 8-11.)

2.　Based on this statement, Applicant respectfully understands that the Examiner is essentially asserting that it would have been obvious to include the concept of data blocks having parity information, as taught by Nishida, with the combination of Velez-McCaskey, Rudoff and Frey, Jr.

3.　Applicant respectfully submits that Nishida relates to a sequential access-type data recording/reproducing system and method, such as the spiral track of an optical disc or a magnetic tape. (See Nishida, column 1, lines 9-13.)

4.　In this regard, Nishida discloses that each data file recorded on the sequential access-type medium includes a plurality of data blocks, having as their components clusters of data to which parity has been added for detection/correction of errors. (See Nishida, column 1, lines 29-32; column 7, lines 11-13; column 8, lines 21-23; column 9, lines 30-32; and column 10, lines 37-39; and Figures 4, 6, 8, 10 and 12.)

5.　Notably, each example of a recorded data file provided by Nishida is a data file that is sequentially recorded on the storage medium. That is, Nishida discloses a data file comprising a plurality of data blocks to which parity has been added and that the data file is sequentially recorded on the storage medium.

6.　In contrast, Velez-McCaskey discloses that "one surface 66 of each of the drives is dedicated to parity." (See Velez-McCaskey, column 9, lines 27-28, and Figure 9, 10a and 10b.) Additionally, Velez-McCaskey discloses that "parity information may be sent to any

other parity drive surface." (See Velez-McCaskey, column 9, lines 31-32.) Further, Velez-McCaskey discloses that "RAID-3 is implemented within each drive of the array, and the generated parity is transmitted to the appointed parity drive for RAID-4 implementation, or striped across all of the drives for RAID-5 implementation." (See Velez-McCaskey, column 9, lines 32-36.)

7.   Thus, Velez-McCaskey discloses that a data file and the corresponding parity information for the file are not sequentially recorded on the same storage medium. The parity information is stored on a "parity drive surface," and is, therefore, not sequentially recorded with the data file for RAID-3 and RAID-4 implementations. For a RAID-5 implementation, the parity information is striped across all drives of the RAID-5 implementation.

8.   Applicant respectfully submits that combining Nishida with Velez-McCaskey, on one hand, would change the principle of operation of Nishida because a Nishida data file would not be sequentially recorded on the storage medium so that the parity information for the data file was sequentially recorded with the data. On the other hand, if the Nishida sequential recording of a data file with the parity information for the file is adhered to, then the principle of operation of Velez-McCaskey would be changed.

9.   In the final Office Action dated May 6, 2008, the Examiner states that Nishida is not being modified. Thus, if Nishida is not being modified, then Velez-McCaskey is the applied patent that is being modified.

10.   Applicant respectfully submits that Velez-McCaskey states at column 9, lines 27-28, that in Figures 9-11, at least one surface 66 of each of the drives is dedicated for parity.

11.   Consequently, to modify Velez-McCaskey as taught by Nishida as urged by the Examiner would result in there not being one surface 66 of each of the drives of Velez-McCaskey that would be dedicated to parity because the parity would be recorded sequentially on the drives (as taught by Nishida).

12.   Applicant respectfully submits that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention

being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

13.   Applicant respectfully submits that to change the principle of operation of Velez-McCaskey in order to form the subject matter of claim 15 or the subject matter of claim 31 is contrary to *In re Ratti*, 270 F.2d.810, 123 USPQ 349 (CCPA 1959).   (See, also, MPEP § 2143.01.)

14.   Further, Applicant respectfully submits that the Examiner's proffered reasoning for combining Nishida with the combination of Velez-McCaskey and Rudoff is the mere assertion that "it would have been obvious to one of ordinary skill in the art at the time the invention was made for the shared data blocks to include parity information in order to provide error detection and correction when the data files are rebuild [sic] as taught by Nishida (Col. 1, lines 29-33)." (See final Office Action dated May 6, 2008, page 4, lines 8-11.)

15.   Applicant respectfully submits that the proffered reasoning is nothing more than a conclusory statement without any support. "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness". *In re Kahn*, 441 F. 3d 977, 988 (Fed.Cir. 2006) (Cited with approval in KSR.)

16.   As such, Applicant respectfully submits that the Examiner's line of reasoning for combining Nishida with the combination of Velez-McCaskey and Rudoff is not convincing because there is no rational underpinning to support the proffered line of reasoning. To modify Velez-McCaskey with Nishida as urged by the Examiner would result in there not being one surface 66 of each of the Velez-McCaskey drives that is dedicated to parity because the parity would be recorded sequentially on the drives (as taught by Nishida).

C. **Claims 16-20, 24-26, 28-30, 32, 33, 35, 36 and 38-40 Are Allowable Over Velez-McCaskey In View Of Rudoff And In View Of Nishida And Further In View Of Frey, Jr.**

1. Accordingly, independent claims 15 and 31 are allowable over Velez-McCaskey in view of Rudoff and in view of Nishida and further in view of Frey, Jr.

2. It follows that claims 16-20, 24-26, 28-30, 32, 33, 35, 36 and 38-40, which respectively incorporate the features of claims 15 and 31, are each allowable over Velez-McCaskey in view of Rudoff and in view of Nishida and further in view of Frey, Jr. for at least the same reasons that claims 15 and 31 are considered allowable.

3. The Examiner does not state that any of Velez-McCaskey, Rudoff, Nishida or Frey, Jr. expressly or impliedly suggests the claimed subject matter.

4. Moreover, the Examiner has not presented a convincing line of reasoning as to why the artisan would have found the claimed subject matter to have been obvious in light of the teachings of Velez-McCaskey, Rudoff, Nishida and Frey, Jr. because the Examiner improperly modifies the principle of operation of Nishida to arrive at the claimed subject matter, additionally or in the alternative, the Examiner improperly modifies the principle of operation of Velez-McCaskey to arrive at the claimed subject matter. Moreover, Applicant respectfully submits that the proffered motivation for combining Velez-McCaskey, Rudoff, Nishida and Frey, Jr. is a conclusory statement without any rational underpinning to support the line of reasoning. Thus, it is only by using Applicant's disclosure as a template that the Examiner is able to select particular features of Velez-McCaskey, Rudoff, Nishida and Frey, Jr. through a hindsight reconstruction of Applicant's claims to make the rejection.

5. Consequently, Applicant respectfully requests that this rejection be withdrawn, and claims 15-20, 24-26, 28-33, 35, 36 and 38-40 be allowed.

VI.   The Rejection Based On Velez-McCaskey In View Of Rudoff In View Of Nishida And Further In View Of Frey, Jr. And Further In View Of Styczinski

Applicant respectfully traverses the rejection of claims 22 and 34 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida in view of Frey, Jr. and further in view of Styczinski. Applicant respectfully submits that the subject matter according to either of claims 22 and 34 is patentable over Velez-McCaskey in view of Rudoff and in view of Nishida further in view of Frey, Jr. and further in view of Styczinski.

A.   In particular, Applicant respectfully submits that Styczinski does not cure the deficiencies of Velez-McCaskey in view of Rudoff in view of Nishida and in view of Frey, Jr. with respect to claims 15 and 31, the respective base claims of claims 22 and 34.

B.   More specifically, Applicant respectfully submits that (1) Styczinski does not cure the Examiner's impermissible change of operation of Velez-McCaskey, and (2) Styczinski does not cure the Examiner's unconvincing line of reasoning for combining Velez-McCaskey, Rudoff, Nishida and Frey, Jr.

C.   Consequently, Applicant respectfully requests that the rejection of claims 22 and 34 be withdrawn, and claims 22 and 34 be allowed.

VII.   The Rejection Based On Velez-McCaskey In View Of Rudoff And In View Of Nishida Further In View Of Frey, Jr. And Further In View Of Gotoh

Applicant respectfully traverses the rejection of claims 21 and 33 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida further in view of Frey, Jr. and further in view of Gotoh. Applicant respectfully submits that the subject matter according to either of claims 21 and 33 is patentable over Velez-McCaskey in view of Rudoff in view of Nishida further in view of Frey, Jr. and further in view of Gotoh.

A.   In particular, Applicant respectfully submits that Gotoh does not cure the deficiencies of Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Frey, Jr. with respect to claims 15 and 31, the respective base claims of claims 21 and 33.

B.   More specifically, Applicant respectfully submits that (1) Gotoh does not cure the Examiner's impermissible change of operation of Velez-McCaskey, and (2) Gotoh does not cure the Examiner's unconvincing line of reasoning for combining Velez-McCaskey, Rudoff, Nishida and Frey, Jr.

C.   Consequently, Applicant respectfully requests that the rejection of claims 21 and 33 be withdrawn, and claims 21 and 33 be allowed.

VIII. The Rejection Based On Velez-McCaskey In View Of Rudoff And In View Of Nishida And Further In View Of Frey, Jr. And Further In View Of Bright

Applicant respectfully traverses the rejection of claims 27 and 37 as unpatentable over Velez-McCaskey in view of Rudoff in view of Nishida further in view of Frey, Jr. and further in view of Bright. Applicant respectfully submits that the subject matter according to either of claims 27 and 37 is patentable over Velez-McCaskey in view of Rudoff and in view of Nishida, and further in view of Frey, Jr. and further in view of Bright.

A.   In particular, Applicant respectfully submits that Bright does not cure the deficiencies of Velez-McCaskey in view of Rudoff in view of Nishida and further in view of Frey, Jr. with respect to claims 15 and 31, the respective base claims of claims 27 and 37.

B.   More specifically, Applicant respectfully submits that (1) Bright does not cure the Examiner's impermissible change of operation of Velez-McCaskey, and (2) Bright does not cure the Examiner's unconvincing line of reasoning for combining Velez-McCaskey, Rudoff, Nishida and Frey, Jr.
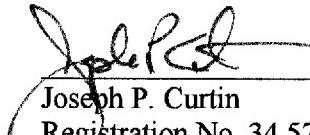
C.   Consequently, Applicant respectfully requests that the rejection of claims 27 and 37 be withdrawn, and claims 27 and 37 be allowed.

CONCLUSION

In view of the above arguments, it is urged that the present application is in condition for allowance.

It is requested that this application be passed to issue with claims 1-40.

Respectfully submitted,

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Joseph P. Curtin
Registration No. 34,571
1469 N.W. Morgan Lane
Portland, Oregon 97229-5291
(503) 296-8373; (503) 297-0452 (facsimile)

CLAIMS APPENDIX

1.   (previously presented)   A filing system controlling block-level storage on a plurality of storage units, comprising:

a policy manager comprising at least one rule relating to block-level storage for a RAID level of protection for a file stored on the plurality of storage units, the RAID level of protection being selected from a plurality of RAID levels of protection, and at least one rule being based on an access pattern of files stored on the plurality of storage units, the filing system comprising information for each data block of the file indicating a number of other files in the filing system that require the data block for providing parity information for rebuilding each of the other files based on a parity calculation; and

an access manager providing the policy manager with information relating to access patterns of files stored on the plurality of storage units.

2.   (original)   The filing system according to claim 1, wherein the selected RAID level of protection is selected further based on size of the file.

3.   (original)   The filing system according to claim 1, wherein the selected RAID level of protection is selected further based on contents of the file.

4.   (original)   The filing system according to claim 1, wherein the selected RAID level of protection is selected further based on the name of the file and a location of the file in a name space of the filing system.

5.   (original)   The filing system according to claim 1, wherein at least two files are stored on the plurality of storage units having different RAID levels of protection.

6.   (original) The filing system according to claim 1, wherein at least two files stored on a same storage unit have different RAID levels of protection.

7.   (original)   The filing system according to claim 1, wherein the information relating to access patterns of files is used for determining at least one RAID stripe size.

8.   (previously presented)   The filing system according to claim 1, wherein the information relating to access patterns of files is used for write coalescing data for storage on the plurality of storage units, and

wherein the filing system coalesces data in a partially full RAID stripe with data from another RAID stripe to make unused space available.

9.   (original)   The filing system according to claim 1, further comprising a RAID manager responsive to a rule contained in the policy manager by implementing the selected RAID level of protection for a file.

10.   (original)   The filing system according to claim 9, further comprising a RAID engine responding to the RAID manager by generating RAID redundancy-type information for the file.

11.   (previously presented) The filing system according to claim 1, further comprising a space manager containing availability information for each storage block on the plurality of storage units.

12.   (previously presented) The filing system according to claim 1, wherein at least one storage unit comprises a hard disk drive.

13.   (previously presented) The filing system according to claim 1, wherein at least one storage unit comprises a random access memory device.

14.   (previously presented) The filing system according to claim 1, wherein at least one storage unit comprises an optical drive.

15.   (previously presented) A method of creating a file on a storage subsystem having a plurality of storage units, the method comprising:

receiving a request at a filing system to create a file on the plurality of storage units, the filing system comprising information for each data block of the file indicating a number of other files in the filing system that require the data block for providing parity information for rebuilding each of the other files based on a parity calculation;

querying a policy manager for at least one rule relating to block-level storage for a RAID level of protection for the file created on the plurality of storage units, the RAID level of protection being selected from a plurality of RAID levels of protection, and at least one rule contained in the policy manager being based on an access pattern of files stored on the plurality of storage units;

writing the file to the plurality of storage units based on the RAID level of protection selected for the file; and

maintaining metadata relating to a location of RAID information for the file within the filing system metadata information.

16.   (original) The method according to claim 15, further comprising providing the policy manager with information relating to access patterns of files stored on the plurality of storage units.

17.   (original) The method according to claim 15, wherein the selected RAID level of protection is selected further based on a size of the file.

18.   (original) The method according to claim 15, wherein the selected RAID level of protection is selected further based on contents of the file.

19.   (original) The method according to claim 15, further comprising storing at least two files on the plurality of storage units using different RAID levels of protection.

20.   (original) The method according to claim 15, further comprising storing at least two files on a same storage unit using different RAID levels of protection.

21.   (original) The method according to claim 15, further comprising determining at least one RAID stripe size based on the information relating to access patterns of files.

22.   (previously presented) The method according to claim 15, further comprising write coalescing data for storage on the plurality of storage units based on the information relating to access patterns of files; and coalescing data in a partially full RAID stripe with data from another RAID stripe to make unused space available.

23.   (original) The method according to claim 15, further comprising dynamically adjusting a RAID stripe size to match a filing system stripe and segment size based on at least one rule.

24.   (original) The method according to claim 15, further comprising implementing the selected RAID level of protection for a file based on a rule contained in the policy manager.

25.   (original) The method according to claim 24, further comprising generating RAID redundancy-type information for the file.

26.   (original) The method according to claim 15, wherein at least one file stored on the plurality of storage units is stored as a store for filing system metadata information.

27.   (original)   The method according to claim 15, further comprising storing availability information for each storage block on the plurality of storage units.

28.   (previously presented)   The method according to claim 15, wherein at least one storage unit comprises a hard disk drive.

29.   (previously presented)   The method according to claim 15, wherein at least one storage unit comprises a random access memory device.

30.   (previously presented)   The method according to claim 15, wherein at least one storage unit comprises an optical drive.

31.   (previously presented)   A method of writing a file on a storage subsystem having a plurality of storage units, the method comprising:

determining at a filing system that a file stored on the plurality of storage units should be updated, the filing system comprising information for each data block of the file indicating a number of other files in the filing system that require the data block for providing parity information for rebuilding each of the other files based on a parity calculation;

querying a policy manager for at least one rule relating to block-level storage for a RAID level of protection for the file stored on the plurality of storage units, the RAID level of protection being selected from a plurality of RAID levels of protection, and at least one rule contained in the policy manager being based on an access pattern of files stored on the plurality of storage units;

writing the file to the plurality of storage units based on the RAID level of protection selected for the file; and

maintaining metadata relating to a location of RAID information for the file within the filing system metadata information.

32. (original) The method according to claim 31, wherein writing the file writes the file at the same place on the plurality of storage units that the file was located before the writing based on the selected RAID level of protection.

33. (original) The method according to claim 31, wherein writing the file writes the file at a different location on the plurality of storage units based on the selected RAID level of protection.

34. (previously presented) The method according to claim 31, further comprising providing the policy manager with information relating to access patterns of files stored on the plurality of storage units and coalescing data in a partially full RAID stripe with data from another RAID stripe to make unused space available.

35. (original) The method according to claim 31, wherein the selected RAID level of protection is selected further based on size of the file.

36. (original) The method according to claim 31, wherein the selected RAID level of protection is selected further based on contents of the file.

37. (original) The method according to claim 31, wherein the selected RAID level of protection is selected further based on a name of the file and a location of the file in a name space of the filing system.

38. (previously presented) The method according to claim 31, wherein at least one storage unit comprises a hard disk drive.

39. (previously presented) The method according to claim 31, wherein at least one storage unit comprises a random access memory device.

40.   (previously presented) The method according to claim 31, wherein at least one storage unit comprises an optical drive.

EVIDENCE APPENDIX

No Additional Evidence Submitted

RELATED PROCEEDINGS APPENDIX

No related proceedings